MILITARY
SPECIFICATION

MIL-L-13078A(SigC)
10 October 1955
Superseding
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LOUDSPEAKER, DYNAMIC (LS-112( )/U, LS-116( )/U, LS-148( )/U, LS-160( )/U, LS-179( )/U, LS-181( )/U) AND LOUDSPEAKER ASSEMBLY (LS-15 4( )/U AND LS-206( )/U)

1. SCOPE

1.1 This specification covers the following loudspeakers and loudspeaker assemblies of various sizes and mountings, as follows: (see 6.3)

TYPE	NOMINAL UNIT DIAMETER	MOUNTED IN
LS-112( )/U	8 inches	Cabinet
LS-116( )/U	12 ;inches	Cabinet
LS-148( )/U	10 inches	Case
LS-154( )/U	Dual 8 inches	Panel
LS-160( )/U	8 inches	Cabinet
LS-179( )/U	8 inches	Panel
LS-181( )/U	8 inces	Cabinet
LS-206(;/U	Dual 6 inches	Panel

2. APPLICABLE DOCUMENTS

2.1 The following specifications, standards, and drawings, of the issue in effect on date of invitation for bids, form a part of this specification:

SPECIFICATIONS

FEDERAL

NN-B-621	Boxes, Wood, Nailed and Lock-Corner
NN-B-631	Boxes; Wood, Wirebound (For Domestic Shipme nt)
TT-L-0057	Lacquer, Rubbing, Clear (For Wood Furniture)
TT-S-00190	Sealer, Sanding, Lacquer Type (For Wood Furniture)
TT-C-595	Colors; For Ready-Mixed Paints
TT-S-711	Stain; Oil Type, Wood, Interior
UU-T-111	Tape, Paper, gGummed (Sealing and Securing)
PPP-B-601	Boxes; Wood-Cleated-Plywood

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MIL-T-27	Transformers and Inductors (Audio, Power, and Pulse)
JAN-P-106	Boxes; Wood, Nailed (Overseas Type)

JAN-P-108	Packaging and Packing for Overseas Shipment-Boxes, Fiberboard (V-Board and W-Board) Exterior and Interior
MIL-P-116	Preservation, Methods of
JAN-P-117	Packaging and Packing for Overseas Shipment-Bags, Interior Packaging
JAN-P-127	Packaging and Packing for Overseas Shipment-Tape, Adhesive, Pressure-Sensitive, Water Resistant
MIL-B-131	Barrier-Material; Water-Vaporproof, Flexible
MIL-D-10911	Loudspeakers, Dynamic (6 inch, 8 inch, 10 inch, and 12 inch Diameter)

STANDARDS

MILITARY

MIL-STD-105	Sampling Procedures and Table s for Inspection by Attributes
MIL-STD-109	Inspection Terms and Definitions
MIL-STD-129	Marking for Shipment and Storage
MIL-STD-252	Wired Equipment, Classification of Visu al and Mechanical D_e fects For

DRAWINGS

SIGNAL CORPS

SC-D-14208	Dynamic Loudspeaker LS-179( )/U, Drawing and Data List
SC-C-14212	Transformer, A. F.
SC-D-16286	Standard Cycle for Moisture-Resistance Te sts of Component Parts
SC-D-21057	Rotary Switch
SC-D-27270	Speaker Assembly LS-148( )/U
SC-D-27272	Case Assembly.
SC-DL-27464	Speaker Assembly LS-154( )/U
SC-DL-60325	Loudspeaker LS-116( )/U
SC-DL-75435	Loudspeaker LS-206( )/U
SC-DL-90701	Loudspeaker LS-160( )/U

(Copies of specifications, standards, and drawings required by contractors in connection with specific procurements functions should be obtained from the procuring activity or as directed by the contracting officer. Both the title and number or symbol should be stipulated when requesting copies.)

2.2 Other publications. - The following documents form a part of this specification. Unless otherwise indicated, the issue in effect on date of invitation for bids shall apply.

NATIONAL MOTOR FREIGHT CLASSIFICATION, RULES AND CONTAINER SPECIFICATIONS FOR TRUCK SHIPMENTS.

(Application for copies should be addressed to the Issuing Officer, 1424 Sixteenth Street, N.W., Washington 6, D.C.)

UNIFORM FREIGHT CLASSIFICATION, RATINGS, RULES, AND REGULATIONS

(Application for copies should be addressed to the Association of American Railroads, Chicago, Illinois.)

3. REQUIREMENTS

3.1 Procurement model. - The procurement model of Loudspeaker LS-112( )/U and LS-181( )/U shall be the ones which will be available for inspection by prospective bidders and will be lent to the contractor, in accordance with the invitation for bids. Unless otherwise specified herein or in the invitation for bids, the equipment shall conform to the following:

3.1.1 Construction. - Physical construction of Loudspeaker LS-112( )/U and LS-181( )/U shall conform to the procurement models.

3.1.2 Features. - Loudspeakers LS-112( )/U and LS-181( )/U shall incorporate all features of the procurement models.

3.1.3 Verification. - As soon as the procurement models are received, and with the minimum necessary adjustment, the contractor shall measure its performance for compliance with specified characteristics of the equipments on contract. If the models do not meet the specified performance characteristics, the contractor shall adjust them for optimum performance and then repeat the measurements. The contractor shall immediately prepare copies of a test report on the measurements, and forward them as required by the contract. In case of conflict between specified performance characteristics and performance of the models, the former shall govern.

3.2 Construction. - The loudspeakers specified below shall be constructed as follows and shall meet the requirements of this specification. In case of conflict between the specification and drawings, the specification shall govern.

3.2.1 Loudspeaker LS-116( )/U shall be constructed in accordance with the drawings on Drawing and Data List SC-DL-60325.

3.2.2 Loudspeaker LS-148( )/U shall be constructed in accordance with the drawings on Drawing and Data List SC-D-27270.

3.2.3 Loudspeaker LS-154( )/U shall be constructed in accordance with the drawings on Drawing and Data List SC-DL-27464.

3.2.4 Loudspeaker LS-160( )/U shall be constructed in accordance with the drawings on Drawing and Data List SC-DL-90701.

3.2.5 Loudspeaker LS-179( )/U shall be constructed in accordance with the drawings on Drawing and Data List SC-D-14208.

3.2.6 Loudspeaker Assembly LS-206( )/U shall be constructed in accordance with the drawings on Drawing and Data List SC-DL-75435.

3.3 Preproduction samples.-

3.3.1 Quantities.-Four preproduction samples of each shipment on order shall be furnished for Government inspection and approval.

3.3.2 Fabrication and assembly.- Preproduction samples shall be fabricated by the contractor and shall meet all requirements specified for the equipment on contract. The preproduction samples shall be assembled using parts, materials, and processes that will be employed in production, and shall be fabricated and assembled in a manner similar to that to be used in production.

3.3.3 Statement.- Preproduction samples shall be accompanied by a statement comprising the following:

(a) Certification that the preproduction samples have been completely fabricated using parts, materials, processes, tools, and techniques identical to those to be used in production; or (1) and (2) below, as applicable.

(1) Detailed description of each point of difference between the techniques, tools, methods, etc. used in fabricating and assembling the samples and those to be used in production.

(2) Detailed description of any point of difference between the parts, materials, and processes used in the samples and those those to be used in production, and reason why the difference was unavoidable.

(b) Identity of the plant where the samples were fabricated, and date when their assembly was completed.

(c) Test data showing compliance of the samples with specified performance of the equipment on contract. The test data shall comprise an engineering report giving test procedure, observations and other data, calculations, test results, and essential details of the testing equipment (manufacturer's model, serial number, date of calibration, etc.)

3.3.4 Approval and use.- Approval of preproduction samples shall not be construed as a waiver of any specified requirement. After being released to the contractor (see 3.3.5), preproduction samples to be offered as units on contract shall be refabricated by the contractor if necessary to meet specified requirements.

3.3.5 Reference standards. - After preproduction samples have been approved and returned to the contractor's plant, they shall be kept intact in custody of the Government inspector until released by him. They shall be used as reference standards to resolve any differences of opinion regarding interpretation of requirements.

3.4 Service conditions. - The equipments shall meet the following service conditions:

3.4.1 Equipment operating. - The equipment shall meet the requirements of this specification under any probable combination of the following:

(a) Temperature. - Any ambient temperature in the range of -65° to +160°F, including sun load.

(b) Elevation. - Any elevation up to 10,000 feet above sea level.

(c) Relative humidity. - Any relative humidity up to 95 percent.

(d) Salt-laden air. - As encountered in coastal regions.

3.4.2 Equipment non-operating. - The equipment shall meet the requirements of 3.4.1 after subjection to any one or more of the following nonoperating conditions:

(a) Temperature. - Continuous exposure for 72 hours at +160°F and 72 hours at -80°F, at any orientation.

(b) Elevation. - Elevations up to 50,000 feet above sea level.

(c) Relative humidity. - Relative humidity up to 100 percent, including condensation caused by temperature changes.

3.5 Interchangeability. - Corresponding components, replaceable subassemblies, and replaceable parts on contract shall be physically and functionally interchangeable as units without modification thereof or of other items with which the units are used. When dimensions, ratings, characteristics, etc., are not specified, the manufacturer's design limits shall be used to determine compliance with the foregoing. If the contractor is in doubt as to whether a particular subassembly or part is to be considered replaceable, the contracting officer shall be consulted.

3.6 General characteristics. - Each loudspeaker shall conform to the requirements indicated in Table I.

TABLE I

Loudspeaker	Unit Size	Mounting	Finish	Transformer
LS-112( )/U	8 inches	Cabinet, 3.6.2.1	3.8.2	3.9.1
LS-116( )/U	12 inches	Cabinet, 3.6.2.1	3.8.3	3.9.2
LS-148( )/U	10 inches	Case, 3.6.2.3	3.8.1	None
LS-154( )/U	8 inches	Panel, 3.6.2.2	3.8.2	3.9.4
(Cont'd)				

Loudspeaker	Unit Size	Mounting	Finish	Transformer
LS-160( )/U	8 inches	Cabinet, 3.6.2.1	3.8.2	3.9.3
LS-179( )/U	8 inches	Panel, 3.6.2.2	3.8.2	3.9.4
LS-181( )/U	8 inches	Cabinet, 3.6.2.1	3.8.2	3.9.5
LS-206( )/U	6 inches	Panel, 3.6.2.2	3.8.2	3.9.6

3.6.1 Loudspeaker units. - The loudspeaker units used in the construction of loudspeakers covered by this specification shall be in accordance with Specification MIL-D-10911.

3.6.2 Mounting. -

3.6.2.1 Cabinets. - For all cabinet loudspeakers indicated in Table I, completely inclosed "tilt-type" wall mounting cabinets shall be supplied.

3.6.2.1.1 Loudspeaker opening and grille. - The front openig shall be covered with grille cloth to harmonize with the cabinet finish.

3.6.2.1.2 Speaker mounting. - The loudspeaker unit shall be fastened to the front panel, or adapter ring, by a minimum of four No. 8 machine screws.

3.6.2.2 Panels. - Relay rack panel mounted loudspeakers shall be in accordance with the applicable drawings.

3.6.2.3 Case. - The case for Loudspeaker LS-148( )/U shall be in accordance with Drawing SC-D-27272.

3.7 Channel selector switch. - Loudspeaker LS-112( )/U shall have a six position rotary switch in accordance with Drawing SC-D-21057 and the model; with ratchet and pull cord. The sixth position of switch shall be an "OFF" position.

3.7.1 Switch contacts. - Surfaces used for electrical contact shall be silver or nickel plated. The plating on switch contacts shall be sufficiently thick to withstand the tests of Section 4.

3.7.2 Pull cord. - The pull cord provided on Loudspeaker LS-112( )/U shall include an 8 inch length of #6 Monel Bead Chain with #1 snap-on end attached to switch, a 5/16 inch open bead attached to chain to act as a stop, and a #6 cord connector as made by Bead Chain Manufacturing Company, Bridgeport, Connecticut, or equal. A metal grommet shall be used where the metal chain passes through the loudspeaker cabinet, to prevent wearing of the wooden cabinet.

3.8 Color. - The color of each loudspeaker (except 3.8.3) shall be in accordance with Specification TT-C-595, as follows:

3.8.1 Loudspeaker LS-148( )/U. - Green #2430.

3.8.2 All others (except 3.8.3). - Gray #2610.

3.8.3 Loudspeaker LS-116( )/U. - After finish sanding all exposed surfaces shall be treated with a walnut colored stain filler in accordance with Specification TT-S-711.

3.8.3.1 One coat of clear sealer in accordance with Specification TT-S-00190 shall be applied after the filler has set and been smoothed.

3.8.3.2 Two coats of clear lacquer in accordance with Specification TT-L-0057 shall be applied over the sealed surfaces after allowing the sealer to set and be smoothed.

3.8.3.3 All exposed surfaces shall be rubbed to produce a smooth surface.

3.8.3.4 All non-exposed surfaces shall be smooth sanded and coated with one coat of clear lacquer in accordance with Specification TT-S-00190.

3.8.3.5 After the sealer has set, all non-exposed surfaces shall have one coat of clear lacquer in accordance with TT-L-0057.

3.9 Transformers. - Transformers shall be Class A, Grade 1, Family 16, in accordance with Specification MIL-T-27.

a. Insertion loss. - Each transformer, when tested in accordance with Specification MIL-T-27, the 1000 C.P.S. insertion loss shall not exceed 10.87 percent (0.5 db.), when operating at rated input.

b. Dielectric strength. - The dielectric test shall be made with a r.m.s. test voltage of 500 volts.

3.9.1 Loudspeaker LS-112( )/U. - The input transformer shall have a tapped secondary which will provide primary impedances, at 1000 c.p.s., of 16,670/4,170/1040 ohms ± 10 percent when an 8 ohm resistive load is connected, in turn across each secondary tap.

3.9.1.1 Frequency response. - The frequency response over the range of 150 to 7000 c.p.s. shall be flat within 2 db.

3.9.1.2 Power rating. - The transformer shall have a continuous average electrical power handling capacity of 5 watts at 1000 c.p.s.

3.9.2 Loudspeaker LS-116( )/U. - The input transformer shall have a primary winding tapped to provide impedance of 500/1000/1500/2000 ohms, ± 10 percent at 1000 c.p.s., when an 8 ohm loudspeaker voice coil is connected to the secondary winding.

3.9.2.1 Frequency response. - The frequency response over the range of 70 to 7000 c.p.s. shall be flat within 3 db.

3.9.2.2 Power rating. - The transformer shall have a continuous average power handling capacity of 14 watts at 1000 c.p.s.

3.9.3 Loudspeaker LS-160( )/U. - The input transformer shall provide primary

impedances of 250/500/4000/8000 ohms ± 10 percent at 1000 c. p. s. when the secondary winding is connected to an 8 ohm voice coil.

3. 9. 3. 1 Frequency response. - The frequency response over the range of 150 to 7000 c. p. s. shall be flat within 2 db.

3. 9. 3. 2 Power rating. - The transformer shall have a continuous average power handling capacity of 5 watts at 1000 c. p. s.

3. 9. 4 Loudspeakers LS-154/U, LS-179/U. - The transformers shall be fabricated in accordance with SC-C-14212.

3. 9. 5 Loudspeaker LS-181( )/U. - The input transformer shall have a primary winding tapped to provide impedances of 1000/2000/4000/8000/16000 ohms ± 10 percent, at 1000 c. p. s. when an 8 ohm loudpseaker coil is connected, to the secondary winding.

3. 9. 5. 1 Frequency response. - The frequency response over the range of 150 to 7000 c. p. s. shall be flat within 2 db.

3. 9. 5. 2 Power rating. - The transformer shall have a continuous average power handling capacity of 10 watts at 1000 c. p. s.

3. 9. 6 Loudspeaker LS-206( )/U. - The input transformer shall have a tapped secondary to match 4 ohm and 8 ohm loudspeaker voice coils and a primary winding of 600 ohms impedance, ± 10 percent at 1000 c. p. s., when either secondary tap is suitably terminated.

3. 9. 6. 1 Frequency response. - The frequency response over the range of 150 to 7000 shall be flat within 2 db.

3. 9. 6. 2 Power rating. - The transformer shall have a continuous average power handling capacity of 3 watts at 1000 c. p. s.

3. 10 Workmanship. - The equipment shall be manufactured and assembled in a thoroughly workmanlike manner, in accordance with the applicable portions of the following paragraphs herein:

3. 6 General characteristics. -

3. 7 Channel selector switch. -

3. 8 Color. -

3. 9 Transformers. -

4. QUALITY ASSURANCE PROVISIONS

4. 1 Inspection, general. -

4. 1. 1 Definitions. - Standard MIL-STD-109 applies for definitions of inspection terms used herein.

4.1.2 Classification of inspection.- Inspection shall be classified as follows:

(a) Preproduction inspection.

(b) Acceptance inspection.

4.2 Preproduction inspection.- Preproduction inspection shall consist of the group A inspection and nondestructive group B inspection specified in tables III and IV, respectively, and the preproduction inspection specified in table II. Other nondestructive inspection on preproduction samples may be performed to determine compliance with specified requirements.

Table II - Preproduction Inspection

Inspection (For additional preproduction inspection see 4.2)	Requirement Paragraph	Test Paragraph
Cold	3.4	4.10.1
Heat	3.4	4.10.2
Humidity	3.4	4.10.3
Bounce		4.10.4

4.3 Acceptance inspection.- Acceptance inspection shall include group A and group B inspection as specified in 4.3.1 through 4.3.2.2. Group Binspection shall normally be performed on inspection lots that have passed group A inspection and on samples selected from units that have been subjected to and met the group A inspection. However, the order may be varied when the Government considers it more practical to select separate samples for group B inspection. Each unit which will be subjected to group A or group B inspection shall be preconditioned after final assembly. (See 4.4)

4.3.1 Group A inspection.- Group A inspection (including sampling) shall conform to Table III and Standard MIL-STD-105. Group A inspection shall be performed in any order which is satisfactory to the Government inspector.

Table III - Government group A inspection

Inspection	Requirement Paragraph	Test Paragraph	AQL
Loudspeaker unit	3.6.1	MIL-D-10911	MIL-D-10911
Transformer	3.9	4.6	MIL-T-27
Completed loudspeaker assembly			
Visual and mechanical, major		4.5	1%
Visual and mechanical, minor		4.5	4%

(Cont'd)

Inspection	Requirement Paragraph	Test Paragraph	AQL
Visual and mechanical, control		4.5	25 dphu
Sweep frequency	3.6.1	4.7	1%
Quality test	3.6.1	4.8	1%

4.3.2 Group B inspection. - Group B inspection (including sampling) shall conform to table IV and the Appendix to Standard MIL-STD-105. Unless otherwise specified herein, normal inspection shall be used at the start of the contract. The reduced inspection procedure shall be R-1. Disposition of rejected product (sample units and inspection lots) shall be in accordance with Standard MIL-STD-105 and 4.3.4.

4.3.2.1 Group B sampling plans. - The group B sampling plans, as listed in table IV, shall be as follows:

Group B plan	AQL	Inspection level for normal inspection	Inspection level for reduced inspection
B-2	6.5%	L-6	L-5

4.3.2.2 Procedure in case of failure. - When an inspection lot is rejected, the contractor shall immediately investigate the cause of failure and shall report to the Government inspector the results thereof and details of the corrective action taken. If the contractor and Government inspector cannot agree on the effectiveness of the corrective action, the matter shall be referred to the contracting officer for resolution.

Table IV - Government group B inspection

Inspection	Rqt. Para.	Test Para.	Group B Plan
Endurance	3.6.1	4.9	B-2

4.3.3 Reinspection of conforming group B sample units. - Unless otherwise specified, sample units which have been subjected to and passed group B inspection may be accepted on contract, provided that they are resubjected to and pass group A inspection after repair of all visible damage.

4.3.4 Disposition of nonconforming product. - When defective sample units or rejected inspection lots are resubmitted for acceptance, such product shall be suitably tagged or identified by equivalent means to indicate the cause of failure and means employed to correct the fault. The record shall be presented to the Government when the product is resubmitted and shall become the property of the Government.

4.4 Bounce preconditioning. - The equipments, shall be placed in its normal operating position on the table of the Package Tester as made by the L.A.B.

Corporation, Summit, New Jersey, or equal. The package tester, shafts in phase, shall have a speed such that it is just possible to insert a 1/32-inch-thick strip of material under one corner o. edge of the equipment to a distance of 3 inches as the equipment bounces. The equipment shall be subjected to this preconditioning for 1 minute. After bounce preconditioning, the equipment shall not be repaired, alined, cleaned, or otherwise changed prior to subjection to acceptance inspection.

4.5 Visual and mechanical inspection. - Parts and equipment shall be examined for the defects listed in Standard MIL-STD-252.

4.6 Transformer inspection. - Transformers shall be inspected in accordance with Specification MIL-T-27 (family 16) for compliance with 3.9.

4.7 Sweep frequency test. - The loudspeakers shall be subjected to a sweep frequency test over the rated frequency range, at a constant applied voltage equal to that required to deliver rated power to the voice coil of the loudspeaker. There shall be no evidence of cone rattling or striking of the voice coil throughout the frequency range at this signal level.

4.8 Quality test. - The quality of reproduction of both speech and music shall be checked by connecting each loudspeaker to the output of an audio amplifier adjusted to deliver rated program level to a pure resistance equal in value to the rated impedance of the loudspeaker voice coil. The quality shall be equivalent to or better than that of the approved preproduction samples.

4.9 Endurance test. - The loudspeaker shall be operated continluously for a period of 50 hours at rated input level, single frequency. Four different test frequencies shall be used each for a period of 12.5 hours. These test frequencies shall be selected by the Government inspector from the frequency ranges of 250-400 c.p.s., 400-500 c.p.s., 1000-1500 c.p.s., and 2000-3000 c.p.s.; however the test frequencies shall not coincide with any major resonant frequency of the loudspeaker.

4.10 Service conditions tests. - The following tests will be performed on the preproduction samples at a Government laboratory.

4.10.1 Cold test. - The loudspeaker shall be placed in a cold chamber at a temperature of -80°F for a period of 24 hours. The equipment shall then be brought up to and stabilized at -65°F and shall be operated at that temperature. The equipment shall operate satisfactorily and shall be capable of meeting the requirements of this specification.

4.10.2 Heat tests. - The loudspeakers shall be placed in a heat chamber at an ambient temperature of +160°F for a period of 24 hours. At the end of this period, it shall operate satisfactorily and shall be capable of meeting the requirements of this specification.

4.10.3 Humidity test. - The loudspeaker shall be subjected to ten cycles of the humidity test in accordance with Drawing SC-D-16286. No voltage and no vibration shall be applied to the units for the test. At the conclusion of the tenth cycle, the loudspeakers shall be tested for full compliance with this specification. There shall be no evidence of warping or any other damage. Corrosion, if any, shall not be sufficient to interfere with proper operation.

4.10.4 Bounce test.- The equipments shall be secured to the Vehicular Adapter Plate by means of the mounting bracket and placed on the table of the Package tester, both as made by the L.A.B. Corporation, Summit, New Jersey, or equal. The plate shall be constrained from horizontal motion of more than 2 inches by suitable wooden fences. The package tester, shafts in phase, shall be operated at a speed of 285 r.p.m. ±1% for a total of 3 hours. The adapter plate shall be rotated through 90 degrees, in the same direction, at the end of each 3/4 hour period the loudspeakers shall not loosen from its mounting at any time during the test and at the completion of this test there shall be no evidence of collision between any part of the equipments or damage of any nature, and the loudspeakers shall be capable of meeting the requirements of this specification.

5. PREPARATION FOR DELIVERY

5.1 Preservation and packaging.-

5.1.1 Level A - Military package.- Preserve and package Loudspeaker Dynamic (LS-112( )/U, LS-116( )/U, LS-148( )/U, LS-160( )/U, LS-179( )/U, LS-181( )/U) and Loudspeaker Assembly (LS-154( )/U and LS-206( )/U), in accordance with procedures specified for designated methods as prescribed in Specification MIL-P-116 and further described in the following paragraphs.

5.1.1.1 Technical literature.- Package each set of technical literature Method IC-3 as follows: Inclose each set of technical literature whithin a close-fitting, Class b bag conforming to Specification JAN-P-117. Properly seal closure.

5.1.1.2 Loudspeakers and loudspeaker assemblies.- Package each loudspeaker and loudspeaker assembly, individually Method IA as follows: Cushion each unit on all surfaces with cells or pads or both fabricated of 200 pound double-faced, corrugated fiberboard designed to absorb the shock of impact normally encountered in handling and transit. Place each cushioned unit within a close-fitting, suitable style and grade corrugated fiberboard box. Seal box closure with gummed paper tape conforming to Specification UU-T-111. Blunt all corners of the box. Place the boxed unit within a water-vapor-proof barrier qualified for Class 1 application complying with Specification MIL-B-131. Heat seal closure. Place each water-vapor-proofed unit, together with technical literature, within a close-fitting, suitable style and grade corrugated fiberboard box conforming to Specification JAN-P-108. Seal entire box closure, corners and joints with water resistant pressure - sensitive tape complying with Specification JAN-P-127.

5.1.2 Level B - Limited military package.- Preserve and package Loudspeaker, Dynamic (LS-112( )/U, LS-116( )/U, LS-148( )/U, LS-160( )/U, LS-179( )/U, LS-181( )/U) and Loudspeaker Assembly (LS-154( )/U and LS-206( )/U) in accordance with procedure specified for designated methods as prescribed in Specification MIL-P-116 and further described in the following paragraphs.

5.1.2.1 Technical literature.- Package each set of technical literature Method IC-3 as described in 5.1.1.1.

5.1.2.2 Loudspeaker and loudspeaker assemblies.- Package each loudspeaker and loudspeaker assembly, individually Method IA as described in 5.1.1.2.

5.1.3 Level C - Minimum military package. - Loudspeaker, Dynamic (LS-112( )/U LS-116( )/U, LS-148( )/U, LS160( )/U, LS-179( )/U, LS-181( )/U) and Loudspeaker Assembly (LS-154( )/U and LS-206( )/U) shall be packaged in accordance with commercial practice and in a manner that will guarantee adequate protection against corrosion deterioration and physical damage during direct shipment to the first receiving activity at lowest transportation rate.

5.2 Packing. -

5.2.1 Level A - Military pack. - Place a quantity of loudspeakers or loudspeaker assemblies of like size and stock number within a wood cleated plywood or nailed wood box conforming to Specification PPP-B-601(Overseas type) or JAN-P-106, respectively. Fabricate the box to fit the contents snugly. The gross weight of shipping containers shall not exceed approximately 150 pounds. Closure shall be made in accordance with the applicable box specification.

5.2.1.1 Metal strapping. - Metal strapping shall be applied in accordance with the applicable box specification.

5.2.2 Level B - Limited military pack. - A quantity of loudspeaker or loudspeaker assemblies of like size and stock number shall be packed in wood cleated plywood, nailed wood or wirebound boxes conforming to Specification PPP-B-601, NN-B-621 or NN-B-631 respectively. The gross weight of shipping containers shall not exceed approximately 200 pounds. Closure shall be made in accordance with the applicable box specification.

5.2.3 Level C - Minimum military pack. - Loudspeaker, Dynamic (LS-112( )/U, LS-116( )/U, LS-148( )/U, LS-160( )/U, LS-179( )/U, LS-181( )/U and Loudspeaker Assembly (LS-154( )/U and LS-206( )/U) shall be packed for shipment in conformance with the requirements of Uniform Freight Classification Ratings, Rules and Containers Specifications for rail shipments, National Motor Freight Classification Rules and Containers Specifications for truck shipments, Parcel Post Regulations, and the regulations of other carriers as applicable to the mode of transportation.

5.3 Marking for shipment. - Interior packages and exterior shipping containers shall be marked in accordance with applicable provisions of Military Standard MIL-STD-129.

6. NOTES

6.1 Intended use. - The loudspeakers covered by this specification are intended for use in the reproduction of speech or music from radio equipment, recorder-reproducers or public address systems.

6.2 Ordering data. - Procurement documents should specify the following:
(a) Title, number, and date of this specification.
(b) Type required.
(c) Levels of domestic or overseas shipment is required.
(d) Samples required (See 3.3)
(e) Marking and shipping of samples.

6.3 Nomenclature. - The parentheses in the nomenclatures will be deleted or replaced by a letter identifying the particular design, for example: LS-160W/U. As soon as possible after the award of contract, the contractor should apply to the contracting officer for such information. (See 1.1).

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